REMARKS

Claims 1-15 and 19-21 are currently pending. Claims 16-18 have been canceled without disclaimer. New claims 19-21 have been added herein, support for which may be found at least at page 10, lines 1-17 of the present application. Reconsideration is respectfully requested.

Request for Corrected PTO-892 Form

Applicants have observed that the PTO-892 form received with the Office Action of October 17, 2003 lists the Fukushima et al. publication as JP 362200320A, whereas it is believed that the actual number is JP 62-200320 (i.e., without a leading "3"). It is respectfully requested that the Office issue a corrected PTO-892 form so that the number is correctly listed on the face of any patent issuing from the present application.

Interview Summary Sheet

Receipt of the Interview Summary Sheet with the Office Action of September 24, 2004 is acknowledged, and the Examiner's explanation thereon of the substance of the interview on June 4, 2004 (i.e., regarding issuance of a new Office Action in view of a typographical error in the previous Office Action which raised an ambiguity) is appreciated.

Rejection under 35 U.S.C. § 112, Second Paragraph

The Office Action includes a rejection of claims 1-18 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. It is believed that independent

claims are sufficiently clear that one of ordinary skill in the art would readily understand what is being claimed. Nevertheless, in an effort to expedite prosecution, independent claims 1, 6 and 10 have been amended in ways that enhance the readability of these claims. For example, claim 1 has been amended to recite that the dielectric multilayer film is configured to transmit light of the first polarized light component at a first incidence angle, reflect light of the second polarized light component at the first incidence angle, and transmit light of the second polarized light component at a second incidence angle different from the first incidence angle. It will be understood that this recitation describes a property of the dielectric film. Claim 1 has also been amended to recite that light entering the dielectric multilayer film at the first incidence angle and transmitted through the dielectric multilayer film is reflected from the reflecting element so as to impinge the dielectric multilayer film at an angle equal in magnitude to said second incidence angle. Independent claims 6 and 10 have been similarly amended. Withdrawal of the rejection is respectfully requested.

Art Rejections

The Office Action also includes a rejection of claims 1, 2, 4, 6-8, 10-14, and 16-18 under 35 U.S.C. § 103(a) as allegedly being unpatentable over the Fukushima et al. publication (JP 62-200320) in view of the Kimura et al. patent (U.S. Patent No. 5,590,942). This rejection is respectfully traversed.

In an effort to expedite prosecution, independent claims 1, 6 and 10 have been substantially amended. For example, claims 1, 6 and 10 have been amended to recite subject matter from dependent claims 16, 17 and 18, respectively, which

include the language wherein "the reflected light of the second polarization direction and the converted light having the second polarization direction emerge from a same side of dielectric multilayer film." Claims 1, 6 and 10 have also been amended to recite that the transmitted light of the first polarization direction is reflected at the reflector (or reflecting-type diffraction element, or reflector, as in claims 6 and 10) and is converted to converted light having the second polarization direction by passing through the quarter-wavelength plate twice. Claims 1, 6 and 10 have been further amended to recite that second incidence angle (or second angle of incidence, in claim 10) is different from the first incidence angle (or first angle of incidence, in claim 10).

In contrast, even if the Office's suggested modification were made, for the sake of argument, the resulting apparatus would not possess the combinations of features recited in claims 1, 6, and 10. For example, if the half-wavelength plate of the Fukushima et al. device were replaced with a quarter-wavelength plate as suggested by the Office, reflected light of a second polarization direction and converted light of the second polarization direction would not emerge from a same side of a dielectric multilayer film as recited in claims 1, 6 and 10, as discussed below.

The Fukushima et al. device is grating type optical demultiplexer, whose basic function is to separate incident light having a nonuniform plane of polarization from an optical fiber into its spectral components, and to output color-separated light from the demultiplexer. Since diffraction efficiency of the diffraction grating changes with polarization direction, the demultiplexer is arranged to align the two polarization directions of the incident light before the light impinges on the diffraction grating 11

such that the diffraction grating 11 can act upon the light incident thereon with maximum efficiency. In particular, incident light (from right to left) is separated into a P-polarized component and an S-polarized component at the polarization separating film 15, wherein P-polarized light is transmitted through the polarization separating film 15 and S-polarized light is reflected from the polarization separating film. The S-polarized light is then converted to P-polarized light before impinging on the diffraction grating 11 by passing through the half-wavelength plate 16. Thus, the initial non-uniform polarization of the incident light is converted to light with a uniform polarization aligned along the P-polarization direction before impinging on the diffraction grating 11. At the diffraction grating 11, the light is separated into spectral components and is reflected, thereby being directed from left to right to emerge from the demultiplexer.

More particularly, the initial incident P-polarization component passes through the polarization separating film 15 along line "a" (from right to left) and, after reflection at diffraction grating 11, is transmitted back through film 15 along line "d" to emerge along line "b". The initial incident S-polarization component along line "a" (from right to left) is reflected from polarization separating film 15 (see upper portion of Figure 1), and returns to polarization separating film15 as S-polarized light (having passed through the have-wavelength plate twice) along line "c" after reflection at the diffraction grating 11, and is then reflected again from the film 15 to emerge along line "b".

However, if the half-wavelength plate were hypothetically replaced with a quarter wavelength plate as suggested by the Office, the light returning along line "c" would be P-polarized light, not S-polarized light, and would be transmitted through

the film 15, rather than reflected from film 15. Thus, under the Office's hypothetical modification, light traveling along lines "c" and "d" would emerge from different sides of the film 15. In contrast, claims 1, 6 and 10 recite that reflected light of a second polarization direction and converted light of the second polarization direction emerge from a same side of a dielectric multilayer film. Accordingly, even if the Fukushima et al. device were modified as suggested by the Office, for the sake of argument, the resulting hypothetical device would not posses the above-noted feature recited in claims 1, 6 and 10.

In addition, claims 1, 6 and 10 recite that the transmitted light (light transmitted through the dielectric multilayer film) of the first polarization direction is reflected at the reflecting element (or reflecting-type diffraction element, or reflector, as in claims 6 and 10) and is converted to converted light having the second polarization direction by passing through the quarter-wavelength plate twice. In contrast, under the Office's suggested modification, the P-polarized light transmitted through the polarization separating film 15 along line "a" from right to left does not undergo any polarization conversion, and instead remains P-polarized light. Accordingly, even if the Fukushima et al. device were modified as suggested by the Office, for the sake of argument, the resulting hypothetical device would not possess this feature recited in claims 1, 6 and 10.

Accordingly, for at least the above-noted reasons, withdrawal of the rejection and allowance of claims 1, 6 and 10 are respectfully requested. Claims 2-5, 7-9, and 11-15 are allowable at least by virtue of dependency.

The Office Action also includes a rejection of Claim 3 under 35 U.S.C. § 103(a) as allegedly being unpatentable over the Fukushima et al. publication in view

of the Kimura et al. patent, and further in view of the Wentz patent (U.S. Patent No. 4,515,441), and further includes a rejection of Claims 5, 9, and 15 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Fukushima et al. publication in view of the Kimura et al. patent, and further in view of the Steiner et al. patent (EP 0471109). Applicants respectfully submit that Claims 3, 5, 9, and 15 are allowable at least by virtue of dependency. Moreover, neither the Wentz patent nor the Steiner et al. patent make up for the deficiencies of the Fukushima et al. publication and the Kimura et al. patent as set forth above. Accordingly, withdrawal of the rejection and allowance of these claims are respectfully requested.

In addition, it is respectfully submitted that the pending claims are further patentable over the applied references at least for reasons of record set forth in the Amendment of January 20, 2004. Applicants have observed that the Office's present art rejections are substantially the same as those set forth in the Office Action of October 17, 2003, yet the Office has not responded whatsoever to Applicants remarks set forth in the Amendment of January 20, 2004. As noted at M.P.E.P. § 707.07(f), "Where the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant's argument and answer the substance of it." Also, states M.P.E.P. § 706.07 states, "The examiner should never lose sight of the fact that in every case the applicant is entitled to a full and fair hearing, and that a clear issue between applicant and examiner should be developed, if possible, before appeal." Accordingly, should the Office disagree with the arguments referred to herein, it is respectfully submitted that the Office should provide a detailed, substantive rebuttal.

New Claims 19-21

New claims 19-21 have been added herein, support for which may be found at least at page 10, lines 1-17 of the present application. These claims are allowable at least by virtue of dependency, and further present additional distinguishable subject matter.

Conclusion

In light of the foregoing, withdrawal of the rejections of record and allowance of this application are respectfully requested. Should there be any questions in connection with this application, the Office is invited to contact the undersigned at the number below.

Respectfully submitted,

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